



Atty Docket: 15-UL-5310

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Larry Y.L. Mo et al. : Group Art Unit: 2174
Serial No.: 09/628,173 : Examiner: Nguyen, N.D.
Filed: July 28, 2000
Title: IMAGING SYSTEM HAVING PRESET
PROCESSING PARAMETERS ADAPTED
TO USER PREFERENCES

Hon. Commissioner of Patents & Trademarks
Washington, D.C. 20231

**DECLARATION OF INVENTOR SWEARING BACK OF
REFERENCE PURSUANT TO 37 CFR § 1.131**

I, DEAN W. BROUWER, hereby declare as follows:

I am one of the joint inventors of the invention described and claimed in patent application Serial No. 09/628,173 filed in the United States of America on July 28, 2000, and entitled IMAGING SYSTEM HAVING PRESET PROCESSING PARAMETERS ADAPTED TO USER PREFERENCES.

Larry Mo. Terry Duesterhoeft and I conceived and reduced to practice the invention recited in claims 1-32 of the above-referenced patent application in the United States of America while in the employ of General Electric Company (hereinafter "GE").

The broad concept of the invention is recited in pending independent claims 1, 14, 19, 25 and 29 in the above-referenced patent application. I believe that the Invention Disclosure Sheet annexed hereto (Exhibit A) shows that the broad concept was conceived as early as August 27, 1999.

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The Invention Disclosure Sheet is dated August 27, 1999, signed by Larry Mo and myself, and witnessed on August 30, 1999 by Frank Dong and Gary Macleon, both of GE.

The undersigned inventor is submitting this exhibit for the purpose of demonstrating that the systems and methods recited in the independent claims of the instant patent application had been conceived, in the U.S.A., as early as August 27, 1999 and was never abandoned or suppressed.

The undersigned inventor declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Full name of joint inventor: DEAN W. BROUWER

Inventor's signature:



6/15/04
DATE

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Invention Disclosure Sheet

GE Medical Systems
General Electric Company
P. O. Box 414, Milwaukee, WI 53201

EXHIBIT A

15-UL-5310

To: Susan Donahue, W-710
Patent Paralegal

Systems Engng./Marketing DEPARTMENT
Ultrasound SECTION

Date: Aug 27, 1999

An Automatic Tissue Optimization Method that Adapts to User's Preferences

Background

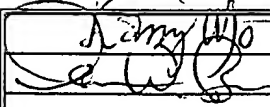
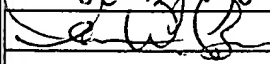
An automatic tissue optimization (ATO) feature for B-mode imaging was introduced on the GE LOGIQ 700 unit in 1998. This feature consists of using the system CPU to grab the current B-image frame, analyze its pixel value histogram, and then rescale the gray map to map the upper and lower bounds of the histogram to some predefined optimal upper and lower gray levels for optimal contrast display. This feature is different from systems presets in that the gray map adjustments are based on actual image data. If presets are like L, M and S sizes for a suit, ATO is customer tailoring. However, just as some customers may prefer a loose fit on a hot day, while others may prefer a snug fit for all seasons, ATO with predefined target gray level limits has not been able to satisfy all users. Sometimes the users find the ATO setting gives "too much contrast" so they would make further manual changes of dynamic range or gain to effectively readjust the gray level display of the tissue. One obvious solution is to provide presetable ATO target gray map parameters. However, different doctors using the same scanner may have different preferences depending on application type, and furthermore, their preferences may evolve over time as they develop experience with the scanner. So simple ATO target gray level presets may not suffice, while an ATO with many presetable or user-selectable parameters would detract from its "auto" capabilities.

AUG 31 1999

Summary of Invention

An extended ATO feature is proposed which incorporates

- 1) capability of learning the user's preferences based on the manual adjustments made to display parameters (dynamic range, gain and gray map) within a predefined period of time after the initial ATO adjustment;
- 2) capability of self-updating its internal target parameters such as optimal dynamic range setting and optimal gray level limits based on the above learning step;
- 3) capability of analyzing (e.g. take an average) and using the result from two or more past learning experiences;
- 4) capability of storing different optimal ATO target parameters for different users' (e.g. doctors) names and/or application types.

	Larry Mo	EA-54	7-4561	8-27-99
	Dean Brouwer	EA-54	7-4065	8-27-99
Inventor Full Signature Above		GE Mailcode/Home Address	Phone #	Date

Witnessed and Understood By Me:





8/30/99

Witnessed and Understood By Me:

GARY MACLEOD

(SIGNATURE)

(SIGNATURE)

(DATE)
8/30/99
(DATE)



Invention Disclosure Sheet

GE Medical Systems
General Electric Company
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As an additional option, some user's control such as a software key can be provided to turn the above update or "learning" mode on or off. There will be times when the user wants to operate the system with more extreme settings to maximize the contrast around an unusual lesion, or perhaps for teaching or system maintenance purposes. In those situations it would be desirable to have the learning mode turned off.

In yet another option, if in the ATO learning mode, the system detects a very large change of dynamic range setting from what the current user normally uses, the system may prompt the user to confirm if s/he wishes to update the internal ATO parameters based on such unusual settings.

With the above extended ATO feature, it is expected that the ATO performance will quickly adapt to each user's preference. That is, as the user exercises the ATO feature in clinical studies, the amount of manual adjustments needed after ATO should automatically and rapidly diminish.


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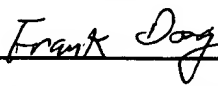
Technology Center 2100

AUG 31 1999

PATENT OPERATION

	Larry Mo	EA-54	7-4561	8-27-99
	Dean Brouwer	EA-54	7-4065	8-27-99
Inventor Full Signature Above		GE Mailcode/Home Address	Phone #	Date

Witnessed and Understood By Me:



(SIGNATURE)

(DATE)

8/20/99

Witnessed and Understood By Me:

GARY MACLEOD

(SIGNATURE)

(DATE)

8/30/99